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AUTHOR Lambert, Nadine M.
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ABSTRACT

The Beginning Teacher Evaluation Study, Phase II, was a research project on effective teaching behavior--what teachers do that significantly affects what and how pupils learn. The purposes of Phase II were to (1) develop an assessment system for measuring teacher and student behaviors and other factors which could influence each of them and their interrelationships and (2) generate hypotheses about the interrelationships among teacher and pupil behaviors and related factors. Subjects were 41 second grade and 54 fifth grade experienced teachers in eight school districts in California. The APPLE Observation System was one of two observational systems used in the study. The APPLE System involves a written record of the behaviors of teachers and pupils. "Scores" in the form of prorated frequencies from the observations were used as measures of teaching performance and pupil behavior. (RC)

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APPLE Observation Variables as Measures of Teacher Performance

Nadine M. Lambert
University of California, Berkeley

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Summary

The APPLE Observation System is a pupil-based system for recording behavior events in the classroom. Records of pupil behavior carry with them mandatory information describing pupil activities, the organizational structure of the classroom, the teacher's instructional activities and the teacher's response to the pupil behavior. Observers make English language descriptions of these events with mandatory information which are subsequently encoded by reference to APPLE Lexicons. The system is both a low-inference naturalistic observation process which retains the pupil behavior annotation, and also a system which yields categorical observational data. When the observations are treated as a category system, summaries of APPLE observation records measure pupil behavior, pupil activity, teacher activity, instructional context and teacher response using either the pupil or the classroom as the unit of analysis.

The computer software which was developed for the APPLE system makes possible the combination of observation categories to yield measures of dyadic classroom variables such as combinations of Teacher Activity-Pupil Event, Pupil Event-Teacher Response or Teacher Activity-Teacher Response. In addition to behavioral records, the APPLE system incorporates a time recording feature so that it is possible to derive measures of duration of classroom behaviors over time.

At the completion of the 200 days of BTES observations, we encoded the APPLE records, summarized the observation categories by classroom, and computed the classroom allocation of time spent in instructional contexts for reading and mathematics. To develop performance measures for reading and mathematics instruction, we analyzed the pupil activity field to assign observations to either reading or mathematics lessons. Next we summarized the observation record for each classroom and developed measures of teacher activities, instructional contexts, pupil behavior and teacher responses which can be considered to be directly or indirectly related to teacher performance.

The results of our preliminary examination of the relationship of these variables to student learning and attitude showed that performance does make a difference when the effects of the initial learning and attitude are controlled.

An overview of the APPLE observation data showed that observed pupil behavior was a function of the type of instruction (reading or mathematics) the grade level of the pupil, the instructional context and the teacher activities. This finding is not surprising since one would expect certain types of pupil behavior are appropriate for specific types of instruction and learning.

While pupil behavior varies from second to fifth grade, presumably due to differences in teaching activities and learning task, teacher responses to pupils, and the quality of teacher responses to pupil behavior are remarkably similar from second to fifth grade. We infer that the ways teachers respond to children's behavior reflect stylistic and personality differences rather than differences attributable to the age of the children they are teaching.

In organized instructional periods disruptive conduct problems and need for teacher discipline are not common and these variables were not significantly related to pupil learning. This suggests that assessing teacher competence on the basis of the absence of behavioral problems during reading and mathematics instruction would be risky indeed.

Classroom summaries of pupil characteristics which do make a difference in reading are the frequencies of observed reading behaviors, and the frequency of on-task learning behaviors at second grade, and at fifth grade the frequency of observed reading behavior, evidence of participation in classroom activities and on-task behaviors. The frequencies of on-task pupil behaviors were significantly related to mathematics learning for both second and fifth grade. When we infer teacher performance from pupil behavior, we base it on the assumption that pupil behavior reflects the teacher's planning, instruction and management.

Several teacher activities were associated with reading achievement outcomes at second grade. These could be described as the extent of direct instruction in reading as opposed to frequencies of observations of organizing the lesson and explaining what the children were to do. Fewer teacher activity variables were significantly related to reading achievement at fifth grade presumably because fifth graders spend more time working independently of teachers at this level.

Teacher feedback responses were associated with improved achievement in both reading and mathematics at both grade levels.

Of considerable interest, and worthy of additional study, was the finding that using the classroom as the unit of analysis, APPLE observation variables which were significantly associated with reading and mathematics achievement were not necessarily those associated with positive attitude change. The fact that teacher performance variables which were related to significant increases in the criterion measures were specific to those measures indicates that we must study teacher performance with multidimensional outcome criteria. These are some of the highlights of the findings; the APPLE observation system provides a rich source of data by which to describe and analyze teacher performance.

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APPLE Lexicon Definition of Selected Pupil Events

+ ACADEMIC PERFORMANCE: Level of performance in school tasks; response to assignments or lessons. Correct.

+ ATTENTIVENESS: Act of paying attention to the subject being taught or discussed, as shown through physical orientation, gestures, verbal response. Used only in positive sense and in situation where teacher is instructing or leading lesson.

+ DIRECTION-FOLLOWING: Behavior related to following directions given by the teacher. Cooperation with teacher directives, whether academic or behavioral.

+ ENGAGEMENT: Act of being involved in subject of lesson. Used when pupil working independently of teacher.

+ PARTICIPATION: Description of an act of joining in a general class or group activity.

+ VOLUNTEERING: Any spontaneous offering by the child to do a job or to give information, as in response to teacher's call for volunteers or to a question put to the entire group or class.

+ WORK HABITS: Positive manner or method of pursuing tasks, i.e. completion of work, efficiency, organization, neatness.

- CONDUCT: Negative school behavior which cannot be placed under a more specific event.

- INATTENTION: Not paying attention to subject being taught or discussed, as shown through orientation, verbal responses, gestures. Usually implies a long-term distraction from activity being directed by teacher.

- TALKING: Inappropriate or forbidden speaking, such as speaking out of turn or during a quiet period.

0 CONDUCT: Neutral school behavior which cannot be placed under a more specific event.

0 ENGAGEMENT: Act of being engaged in subject of lesson, but with less degree of involvement or attention than + ENGAGEMENT.

Pupil Events (Continued)

0 INATTENTION: Not paying attention to subject being taught or discussed. Usually implies a short-term distraction from activity being directed by teacher.

0 WORK HABITS: Neutral manner or method of pursuing tasks.

+ ORAL READING: Positive quality of students reading out loud; fluency, accuracy, expressiveness, pacing, etc.

+ PHONIC SKILLS: Positive evidence of skill in sounding out new words; knowing the sound connected with letters.

+ READING COMPREHENSION: Pupil's correct understanding of what he has read.

+ NUMBER CONCEPTS: Positive knowledge of numbers and number relationships. Includes identification of numerals, counting, skill with fractions, geometrical properties, etc.

- NUMBER CONCEPTS: Absence of knowledge of numbers and number relationships, in comparison with age and class level.

0 NUMBER CONCEPTS: Partial knowledge of numbers or number relationships (e.g. a concept partly understood) or absence of knowledge of concepts more advanced than required by age or class level.

APPLE Lexicon Definition of Selected Contexts

ADULT-GROUP: The class is divided into groups and an adult other than teacher is directing the activity of the group in which the child being observed is participating.

INDEPENDENT-CLASS: The entire class is working or playing independently of the teacher's direction. Teacher usually present but not directing.

INDEPENDENT-GROUP: The group of students in which the child being observed is participating is working or playing independently of the teacher's direction.

INDEPENDENT-INDIVIDUAL: The student being observed is working or playing independently of the teacher's direction and also independently of the rest of the class.

TEACHER-CLASS: Teacher is directing the activity and the entire class is participating.

TEACHER-GROUP: The class is divided into groups and the teacher is directing the activity of the group in which the child being observed is participating.

APPLE Lexicon Definition of Selected Teacher Activities

ACADEMIC ORGANIZING: Teacher getting class or group organized. Giving directions, explaining and doing other activities which direct the students into activities.

ANSWERING: Teacher answers question(s). May refer to a single answer to a single question or to a general situation where teacher is answering questions put by several students over a period of time.

ASKING: Teacher is asking questions of a single student, a group, or the class.

AT DESK: Teacher is doing work at desk. Used when teacher's activity is unspecified or unknown and/or when she is available to help students at her desk.

AT BOARD: Teacher is working at blackboard, either alone (e.g., writing on board) or with student(s).

CHECKING: Teacher is checking work to see if material is understood, to see if instructions are being followed, to see how well work is being done, or if work is correct.

CIRCULATING: Teacher is circulating around room, interacting with students, asking and answering questions, giving help. Used when a more specific activity cannot be identified or when several activities are happening one after the other, too quickly to be specific.

DISCUSSION: Teacher is leading a discussion. Emphasis on student response and comprehension, not simply on facts.

EXPLAINING: Teacher is explaining something, either in response to a question or as part of a process of giving instructions.

HELPING: Teacher is helping a pupil or pupils in unspecified manner. Used when more precise activity, such as explaining or answering, cannot be distinguished, or when several helping activities are happening too quickly to be specified.

INSTRUCTION GIVING: Teacher is giving instructions either about an assigned activity or about classroom organization.

LISTENING: Teacher listens to a student, either during oral reading or while student speaks to her or asks a question.

QUESTION AND ANSWER: Teacher is asking a series of questions, which students answer. Used primarily in group or class context and distinguished from ASKING by serial nature of questions.

SUPERVISING: General situation where teacher is watching over class or a group. May occasionally ask or answer questions, but general emphasis is on observation rather than interaction with students.

WORKING WITH: General unspecified instructional activity of working with an individual, a group or the class. Used when no other teaching activity is specified.

APPLE Lexicon Definition of Selected Teacher Responses

INSTRUCTING: Teacher activities connected with her traditional jobs of instructing and supervising the everyday business of the classroom - "gave a lesson," directed, organized, "called on pupil," answered a question.

DISCIPLINING: Punishment imposed on child for his behavior, e.g. sent to principal's office or told to sit in corner or to stay after school.

TEACHER HELP: Teacher gives some specific instructional assistance to an individual student.

IGNORING: Teacher seemingly aware but not responding to behavior or performance of pupil.

MOVES ON: Teacher does not comment on or give feedback to a pupil response, as in a question and answer session; instead, she calls on another pupil or moves on to another part of the lesson. Can occur when pupil's response is correct or incorrect.

NEGATIVE FEEDBACK: Mild negative verbal reinforcement in response to academic or behavioral performance. e.g., "wrong," "no."

NONE: No response to pupil performance or behavior. No distinction made between whether teacher aware of this performance or behavior or not (unless is clearly a situation of IGNORING).

POSITIVE FEEDBACK: Use of mild positive verbal reinforcement in response to academic or behavioral performance. e.g., "right," "O.K.," "good," "fine," "correct."

PRAISE: Teacher commends or tangibly rewards a student's activities or products.

QUESTIONING: Teacher responds to pupil's behavior or answer to a previous question by herself asking a question.

RECOGNIZING: Teacher's neutral nonevaluative response to an academic performance or a nonacademic behavior. e.g., "notices", "acknowledges".

REDIRECTING: A verbal or non-verbal action by the teacher to redirect a pupil's behavior. Done without apparent anger.

COMBINED APPLE OBSERVATION CATEGORIES*

PUPIL EVENTS — PUPIL SKILL PRODUCTIVITY

Apple 1	+ Oral Reading + Phonic Skills + Reading Comprehension	
Apple 2 — INATTENTION OFF-TASK	0 Conduct 0 Engagement 0 Inattention 0 Work Habits	- Conduct - Inattention - Talking
Apple 3	+ Attentiveness + Direction Following + Engagement + Participation	+ Volunteering + Work Habits + Academic Performance

TEACHING CONTEXTS

Apple 4	Adult-Group
Apple 5	Independent-Class Independent-Group Independent-Individual
Apple 6	Teacher-Group
Apple 7	Teacher-Class

TEACHER ACTIVITIES

Apple 8	Academic Organizing Helping Instruction Giving Supervising Working With
Apple 9	Answering Asking Checking
Apple 10	Discussion Explaining Listening Question and Answering
Apple 11 — MOBILITY	At Desk At Board Circulating

COMBINED APPLE OBSERVATION CATEGORIES
(continued)

TEACHER RESPONSES

Apple 12	Instructing	Teacher Help
	Questioning	Recognizing
	Positive Feedback	
	Praise	
Apple 13	Disciplining	
	Redirecting	
Apple 14	Ignoring	
	Negative Feedback	

*In the Beginning Teacher Evaluation Study, APPLE Observation variables were combined into logical groupings for the structural and regression analyses. The composition of the 14 combined APPLE variables is listed in this table.

Blalock 1964 Causal Inference for Non-Experimental Studies

1969 - Tharp Building